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**ABSTRACT**

*The purpose of the study was to investigate the effect of macroeconomic factors affecting financial performance of deposit taking microfinance institutions in Mombasa County. The target population of the study was 64 senior staff from six deposit taking microfinance institutions operating in Mombasa County and registered with the central bank of Kenya. The study utilized both primary data and secondary data. Primary data was collected by use of structured questionnaires while secondary data was collected from financial data obtained from the Central Bank of Kenya periodicals. The collected data was analysed, summarized and tabulated by use of SPSS software version 25. Descriptive analysis and inferential analysis were used to summarize the results for each of the study objectives. The study findings established that there was a significant relationship between national savings rate and financial performance of deposit-taking micro finance institutions. The study also found that there was a negative contribution of inflation to the financial performance. The regression results also established that there was a significant relationship between exchange rate and interest rate on financial performance of deposit-taking micro finance institutions. The study concluded that the financial performance of deposit taking MFIs are positively affected by national savings. This implied that the more the public save, the high the performance of DTMFIs improves and vice versa. The study concluded that microfinance resorts to credit rationing during inflation period and capital formation has affected by inflation thus affecting intermediary activity. It was concluded that central bank monetary policies during inflation impacts microfinance institutions. The study concluded that interest rate was competitive to attract customers and that interest rates set were dictated by central bank rate. The study recommended that deposit taking MFIs management should lobby the CBK to enact policies which will end up stimulating public to save as this was found to positively affect financial performance of deposit taking MFIs. The study recommended that the management of deposit taking MFIs should set interest rate level for both lending and deposits which is competitive so as to attract more customers and lead to improved performance.*

**Key Words:** Gross National Savings, Exchange Rate, Inflation Rate, Interest Rate, Financial Performance

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## INTRODUCTION

Globally, the last 70 years has witnessed microfinance and micro credit development surge which began in 1950s. Initially the financial services offered by the government or donors were majorly in the form of subsidised rural credit programmes. However, according to Robinson (2015) and Otero (2014), it was not until 1970s that the prominence of microfinance was felt. Robinson, (2015) states that the 1980s represented a turning point in the history of microfinance in that Microfinance Institutions (MFIs) such as Grameen bank began to show that they could provide small loans and savings services profitably on a large scale in Bangladesh. Thereafter subsidies were discontinued, and hence were commercially funded and fully sustainable, and could also attain wide outreach to clients (Robinson, 2015). It was also at this time that the term “microcredit” came to prominence in development.

Rijn (2014) in his study suggested that all of the macro-economic variables i.e. employment rates, inflation, per-capita GDP and interest rates would fairly impact on repayment rates or MFI financial performance under his study. However, argued that it was certainly possible that an international development organization may choose to establish an MFI in a country because of that country’s macro-economic environment but it’s a fact the majority of MFIs are currently managed by non-profit organizations in the business of helping people, not earning profits. Therefore, they go to developing countries where unemployment rates are low, inflation and interest rates are likely to be unstable and per-capita GDP is low. The result of his study showed that per-capita GDP increases MFI profitability meaning that there was relationship between them and that higher MFI profits cause GDP per-capita to rise, or that international development organizations specifically target countries where per-capita GDP is high or increasing. The close link between macroeconomics and microfinance industry

become a very important area of interest in the economic development of a particular country.

In Africa, Microfinance concept is relatively new compared to Latin America and Asia. MFI are able to serve poor clients with products and loans charged by low interest rates and their locations closer to their clients, despite their conditions MFI have been able to give loan with lower rates and still maintain financial stability. MFI success is mostly attributed to use of peer group as innovation mechanism. MFI in an African perspective are diverse in form and mostly depend on financial assistance from international organization and humanitarian organizations and they operate microproduct services that are highly priced (Robbins, 2013). Lemma (2014) carried out a study in Ethiopia and sighted client related impediments affecting performance of MFIs related to loan repayment, business condition of borrowers and channeling of loans obtained to unplanned activities in addition to the Institutional related factors including but not limited to shortage of human resources, adequacy of loan capital and lack of economic technologies in addition to political factors. Kenya’s microfinance sector comprises of nearly of 250 MFIs, with only 50 of these being registered with their umbrella body, Association of Microfinance institutions (AMI). Only eleven of these are licensed by CBK to take deposits. The eleven deposit taking microfinance institutions according to the Central Bank of Kenya (2014) are Sumac microfinance bank, U&I microfinance bank, Faulu Kenya, Kenya women finance trust, Rafiki microfinance bank, Small and micro enterprise programme (SMEP), Century microfinance, Remu microfinance, Choice, Caritas and Uwezo fund microfinance and they was the focus of this study. Several studies have been conducted on the impact of macroeconomic variables on performance of commercial banks and few studies have been conducted on deposit taking MFIs hence the researcher would want to fill the gap left.

In Kenya, a survey conducted in 2013 by Shankar shows that MFI is a relatively small in Kenya financial sector but the outreach has double into 3.4% in 2009 with a loan portfolio of over 18 million US\$ in 2012. Currently MFI provide loans and they are likely to increase their products and services portfolio. The growth of MFI can be measured in two folds sustainability (ability to generate funds to maintain and expand services without injection of subsidy) and performance (provision of services to the society and the optimal goal of microfinance intervention). The MFI act was enacted in 2006 this has brought the regulation on the licensing, supervision and establishment of MFI under the control of central bank of Kenya. The Act is to create an enabling environment that would promote sustainability and performance of MFI and at the same time protect customers interest (Mukama, 2014).

The IMF's Poverty Reduction Strategy Paper (2015) estimated that people living in poverty would have been a staggering 55.4 percent in Kenya by 2001 and later estimated to have risen to more than 56 percent in 2003. In a bid to address this desperate position of affairs, Parker et al. (2016) advise that MFIs can play the financing role of people's economic options in addition to diversifying their incomes and overall improvement of their quality of life. Central Bank of Kenya, (2015), the Microfinance Act, 2006 and the Microfinance laws issued there underneath establishes legal, regulatory and supervisory framework for the microfinance institutions in Kenya. The principal object of the Microfinance Act is to regulate the establishment, business and operations of MFIs in Kenya through licensing and supervision. The Act also enables Deposit Taking Microfinance establishments authorized by the central bank of Kenya to mobilise savings from the final public, so promoting competition, efficiency and access. It is, therefore, expected that the microfinance industry will play a pivotal role in deepening financial markets and enhancing access to financial services and

products by majority of the Kenyans As at June 2013 according to Central Bank of Kenya; Kenya had 10 deposit taking Microfinance institutions.

Ngema (2014) observed that the microfinance industry had been relatively having been around for 10 years and according to Hopes (2014), in the past 20 years, the sector had seen a number of MFIs open their doors in addition to the boost by both the Kenya government and international donor agencies. Having identified the scarcity of credit as a major obstacle to economic growth, the government of Kenya, brought in the Microfinance Act that came into force on 2nd May, 2008 following the Microfinance (Deposit Taking Microfinance Institutions) regulations by the Central Bank.

The Act covers Deposit Taking Microfinance Institutions (DTMs) as well as non-deposit taking MFIs in addition to providing for banks to establish fully owned subsidiaries to undertake DTM business (CBK, 2015). The Act has paved way for a much more comprehensive and consistent regulatory environment for MFIs having been designed to promote the performance and sustainability of deposit taking MFIs (DTMs) in addition to protecting depositors' interests better. The Act also enables MFIs to provide more wholesome financial services to the small micro enterprises, Sector (CBK, 2015).

### **Statement of the Problem**

The core function of microfinance institutions is to offer credit to people who do not have facilities of access to the financial system with the aim of using it to create or expand a business. However, these MFIs may be affected, exogenously, by the situation of the country where they operate, influencing the full development of their activities, such as granting benefits to their applicants. Deposit taking MFIs in Mombasa are faced with immense pressure to adopt new delivery channels and achieving financial inclusion so they don't serve just a niche market. Notwithstanding the growth of banking sector in

Kenya; DTMFI are not spared either with their services that mostly target the poor people in the society who are considered as higher risk in the banking sector.

Locally, many studies have been researched on MFIs, however these studies have produced mixed results hence contradictory. For example, Njuguna (2016) study on the impact of macroeconomic factors on the financial performance of deposit taking microfinance institutions in Kenya concluded that macroeconomic factors have an impact on financial performance of deposit taking MFIs. Wamucii (2017) examined the relationship between inflation and financial performance of commercial banks in Kenya and established that the performance of commercial banks seemed\* to improve with the increase in inflation. Kipnetich (2016) did a study on the relationship between interest rates and financial performance of commercial banks in Kenya and found that there is a positive relationship between interest rates and financial performance of commercial banks. However, the reviewed local studies have failed to holistically link major macro-economic drivers to MFI performance, while other studies have focused on conventional commercial banks thus giving a wider berth to MFIs. Although several studies have discussed the relationship between macro-economic factors and bank performance, none have looked at more than one variable basing the study on deposit taking MFIs. In view of the above identified gaps, the researcher sought to fill the literature gap by holistically investigating the effect of macro-economic factors on deposit taking microfinance institutions financial performance.

### **Objectives of the Study**

The general objective of this study was to investigate the effect of macro-economic factors on financial performance of deposit taking microfinance institutions in Mombasa County. The study sought to achieve the following specific objectives;

- To establish the effect of national savings rate on financial performance of deposit taking microfinance institutions in Mombasa County
- To determine the effect of inflation on financial performance of deposit taking microfinance institutions in Mombasa County
- To investigate the effect of exchange rate on financial performance of deposit taking microfinance institutions in Mombasa County
- To determine the effect of interest rate on financial performance of deposit taking microfinance institutions in Mombasa County

The study was guided by the following null hypotheses

- **H<sub>0</sub>1:** National savings has no significant effect on financial performance of deposit taking microfinance institutions in Mombasa County
- **H<sub>0</sub>2:** Inflation has no significant effect on financial performance of deposit taking microfinance institutions in Mombasa County
- **H<sub>0</sub>3:** Exchange rate has no significant effect on financial performance of deposit taking microfinance institutions in Mombasa County
- **H<sub>0</sub>4:** Interest rate has no significant effect on financial performance of deposit taking microfinance institutions in Mombasa County.

### **LITERATURE REVIEW**

#### **Flow Oriented Model**

This model was developed by Dornbusch and Fisher in 1980. The model claims that changes in exchange rates alter the international competitiveness of a firm as well as the balance of trade position, and thus exchange rate changes affect real income and output in a country. Share prices of companies are influenced by exchange rate changes and future cash flows of firms. This implies that exchange rate changes lead to stock price returns, and that they are positively correlated. The flow oriented model maintains that a causal relationship, which runs from the exchange rate to the stock prices. This simply

means that exchange rate changes affect the competitiveness of firms as a result of its effect on input and output prices. It follows therefore that if exchange rate appreciates, exporters are likely to be affected negatively. In the same regard an appreciation of the currency is likely to cause goods and services to be dearer on the international market. This will therefore bring about a decline in exports, as they will be seen as expensive by buyers on the international market. It means that such goods will lose their competitiveness internationally. Consequently, their profits will drop and if profits decrease the firms will lose competitiveness on the domestic stock market. Their attractiveness on the domestic stock market will decrease and this will result in their stock prices decreasing in value.

#### **Deflation Theory**

The theory was proposed by Fisher in 1933 which suggested that fall on inflation rates leads to fall in the level of prices, which leads to greater fall in the net worth of business, reduced profitability hence precipitating bankruptcies which leads the concerns running at a loss to make a reduction in output, in trade and in employment of labour. The cycles cause complicated disturbances in the rates of interest and a fall in the money value. The complicated disturbances described above can be summed as both external and internal forces (macro and micro factors) influencing state of over indebtedness existing between, debtors or creditors or both which can compound to loan defaults.

According to this theory, if inflationary pressures from the fiscal stance are being transmitted exclusively through the financing channel, then inflationary pressures could be reduced without fiscal adjustment if alternative (sustainable) sources of financing, such as external financing, are available. In practice, however, some fiscal adjustment is typically also necessary because either the amount of alternative finance is insufficient and/or the fiscal stance is also putting upward pressure on prices

through the aggregate demand channel. Indeed, evidence shows that successful disinflation episodes have typically been accompanied by sizable and sustained fiscal adjustment.

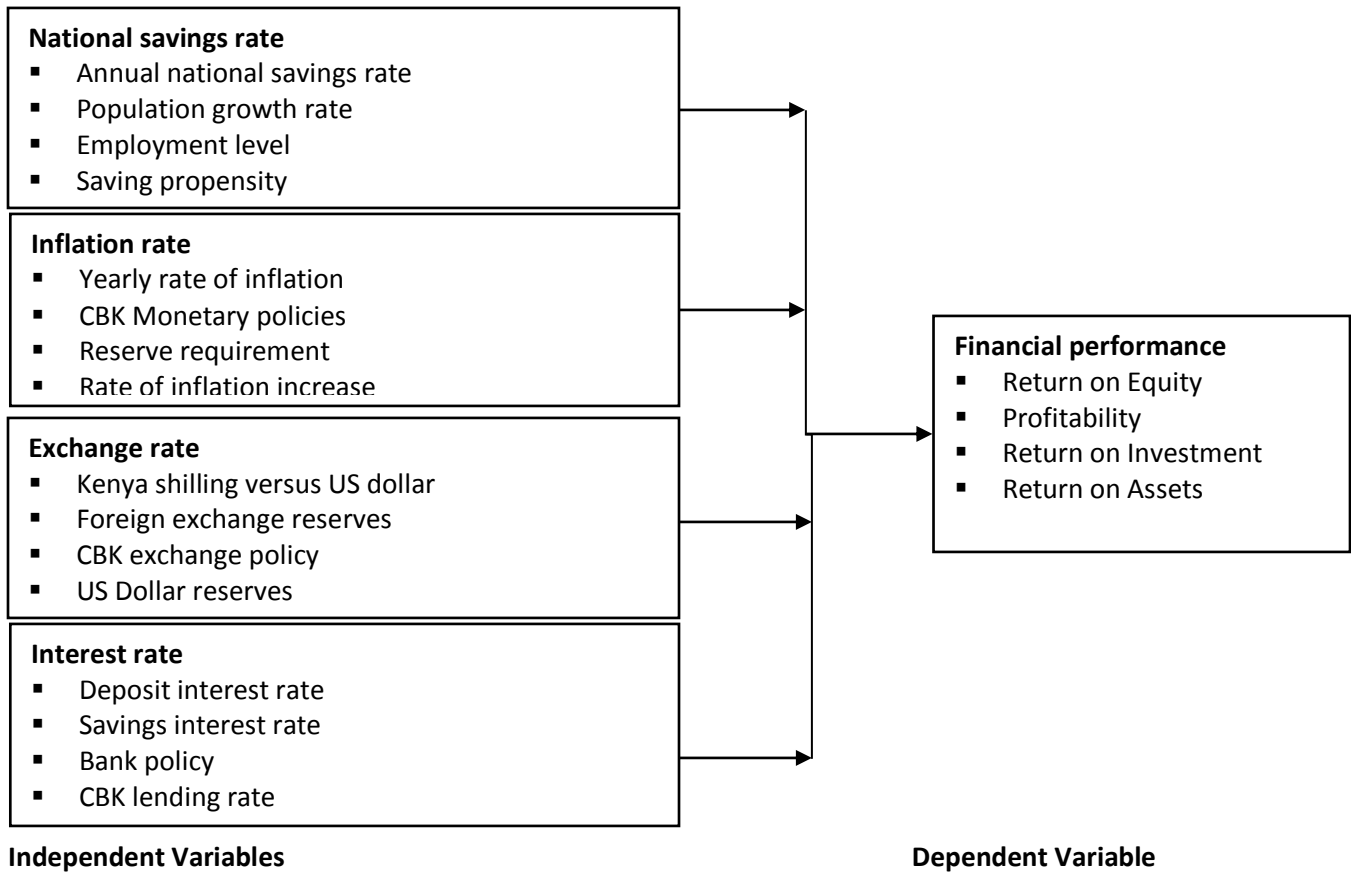
#### **Micro-credit Theory**

Microfinance theoreticians have advanced two theories regarding their aims--an economic and a psychological. The economic theory treats microfinance institutions (MFI's) as infant industries, while the psychological theory differentiates microfinance entrepreneurs from traditional money lenders by portraying them as "social consciousness driven people." According to Remenyi (2014) the gist of the economic argument is that success in any business venture, including MFI's, is determined by the entrepreneurs' ability to deliver appropriate services and profitably. Yunus (2014) explains the psychological component of the micro credit theory called as social consciousness-driven capitalism which he says has been advanced by most of enthusiastic promoter of micro finance; His theory argues that kinds of profit making private ventures that's cares about welfare of its customer can be considered. In other words, it is possible to develop capitalist enterprises that maximises private profits subject to the fair interests of their customers (Elahi, 2015).

The rationale of the theory is straightforward, although philanthropy is totally absent; capitalism is founded mainly on the basis that beings are selfish by nature. Thus, individuals interested in businesses are generally motivated by principle of profit maximization, with little for interest of their clients. This proposition is too limited to be a general model for capitalism however because it excludes individuals who are concerned about the welfare their fellow human beings. A more generalized principle would assume that all entrepreneurs will maximise both financial return or profit and social return. These assumptions created the groups of entrepreneurs (Elahi 2015). The first group consists of traditional capitalist who mainly maximise profits or financial

returns. The second group consists of philanthropic organisations (like traditional micro credit NGOs and public credit agencies that mainly maximise social returns. The third group consists of entrepreneurs who combine both rates in making their investment decisions under the additional constraint that

financial return cannot be negative. This group includes microfinance enterprises that are treated as socially concern people and are microfinance which are to be treated as social consciousness driven capitalist enterprises. This theory support interest rate variable and national savings variable.



**Figure 1: Conceptual Framework**

**Review of Literature on Variables**

Bankole and Fatai (2015) examined the cause and effect relationship between domestic savings and economic performance in Nigeria during the period 1980-2010. The researchers employed the Granger-causality and Engle-Granger co-integration techniques to analyze the relationship between savings and economic growth. In addition, the granger causality test revealed that causality moves from savings to economic growth in Nigeria. Thus, the researchers accept the Solow’s hypothesis that

savings precedes economic growth but reject them Keynesian theory that it is economic growth that leads to higher savings. The researchers recommended that government and policy makers should employ policies that would accelerate domestic savings so as to increase economic growth.

Inflation has an effect on the financial performance of microfinance institutions. According to Huybens and Smith (2013) on a study on the impact of inflation on financial sector performance in eleven countries; argue that an increase in the rate of inflation could

have at first negative consequences on financial sector performance through credit market frictions before affecting economic growth. In fact, market frictions entail the rationing of credit which reduces intermediary activity and capital formation. The reduction of capital investment impacts negatively both on long term economic growth and equity market activity.

Cull (2014) examine the financial performance (using measures of profitability) and outreach in a large comparative study, based on a new and extensive data set of 124 MFIs in 49 countries. The study suggests that MFIs that focus on providing loans to individuals perform better in terms of profitability. Yet, the fraction of poor borrowers and female borrowers in the loan portfolio of these MFIs is lower than for MFIs that focus on lending to groups. It also suggests that individual-based MFIs, especially if they grow larger, focus increasingly on wealthier clients, a phenomenon termed as “mission drift”. This mission drift does not occur as strongly for the group-based MFIs. Thus, Cull (2014) do find evidence for a trade-off between efficiency and outreach.

The issue of exchange rate levels and their relationship with other major economic variables such as growth, income, current account balances, consumption and trade have led to a great deal of discussion since the beginning of the mid-2000s, in particular when global imbalances started to widen. Even if the literature has not yet achieved a definitive consensus regarding the best definition of the long-term equilibrium real exchange rate, Onyancha (2014) recall that various empirical papers have studied the impact that exchange rate overvaluations or under-valuation's can have on performance. In particular, some studies have found that overvaluation hinders financial performance.

The charge on borrowing money is Interest rates. Percentage is useful in expressing interest rate on the total amount borrowed. Interest rate is the amount

of interest charged per unit of time in a given period of time, normally one year. There are a myriad of rates and no one particular rate of interest. Varying interest rates echo the capability and enthusiasm of borrowers to meet their obligations and easiness with which a borrower's promissory note or bond, mortgage, debenture or other indication of indebtedness can be turned into money. The reflection of the quality of the money in which a debt is denominated is illustrated by the level of interest rates. This is the rate at which the moneylender and debtor are taxed guaranteed by the self-assurance in which investors embrace the pertinent fiscal and monetary establishments. The total borrowed interest rates also show the return on asset like Government bond within an economy (Kadongo, 2015).

Financial performance is the ability of MFI to cover the set of its expenses by its income and finance its growth (El Kharti, 2014). Financial performance is measured by the financial and operational self-sufficiency in addition to the ability to be profitable thanks to efficiency and productivity i.e. return on equity and return on assets (Sene, 2014; Adair & Berguiga, 2013). The Return on Equity (ROE) is important for commercial entities aiming at profits and to the ratio only used to measure commercial viability by MFIs (Ledgerwood, 2013). Unlike the return on equity (ROE), the MFIs make use of the Return on Assets as a measure of profitability regardless of the underlying funding structure of the institution, making it possible to compare profit and nonprofit MFISs. Fersi and Boujelbéne (2016) advise that financial performance is measured by three accounting ratios; namely the ROA, ROE and the cash flow ratio.

#### **Empirical Review**

Seferli (2015) examined the effects of macroeconomic factors on the performance of the banking sector in Azerbaijan over the period 2003–2008, using data from 29 commercial banks. He



applied an unbalanced panel with individual random effect to the 109 data points. The dependent variable was bank performance and the independent variables were GDP and inflation. The author found the negative impacts of GDP and inflation to be statistically insignificant and significant, respectively.

Nuriyeva (2014) investigated the profitability of 15 commercial banks in Azerbaijan over the period 2006–2012. The author measured the bank profitability using three main indicators, namely the return on assets, return on equity, and net interest margin, which commonly used in the literature. As for explanatory variables, the author used bank-specific and macroeconomic indicators. For bank-specific variables, she employed capital adequacy, asset quality, management quality, earning ability, bank liquidity, and bank size. The study established that all the above-mentioned bank-specific variables had statistically significant positive effects on the return on assets with the exceptions of management quality and earning ability. Moreover, the study found that the GDP effect was negative and statistically significant.

Ibrahimov (2016) explored the impacts of bank-specific and macroeconomic variables on the profitability of 41 banks over 2012–2015. The results from the static panel model estimations showed that bank size and bank capital both had a positive influence on the return on assets, whereas liquidity risk was negatively associated with it. As macroeconomic variables, exchange rate devaluation and oil prices exerted negative and positive effects on profitability, respectively. It is noteworthy that this is only the study investigating the impact of exchange rate as well as oil prices on the bank profitability in Azerbaijan.

In Kenya, Desaro (2014) did a study on the effect of macroeconomic variables on financial performance of commercial banks in Kenya and found out that the ROA was negatively correlated with the exchange

rate and positively correlated with the GDP growth and inflation. Wanjala (2014) did a study on macroeconomic determinants of stock market performance in Kenya. The study followed descriptive research design and used secondary data. The results were that there is a positive relationship between the Stock Market Performance and the macro-economic variables. However, the study results established that the relationship between inflation as measured by CPI and Stock Market Performance is inverse as the corresponding coefficient in the model was negative.

## **METHODOLOGY**

This study adopted a descriptive research design in which data was collected for the objectives of the study. The target population for this study was finance officers, managers and credit officers of Deposit Taking financial institutions which are members of the Association of the Microfinance Institutions in Kenya (AMFI-K). There were 6 deposit taking MFIs in Mombasa County. The sampling frame for this study consisted of six Deposit Taking Microfinance Institutions in Mombasa County. Primary data was collected using structured questionnaire. The study employed a structured questionnaire to collect data from the participants. Secondary data was obtained from MFIs financial reports, CBK reports, published journals and past studies. The researcher used secondary data because they use already existing information which saves time and money (Kothari, 2014).

A structured self-completed research questionnaires were distributed to the target population and collected after one week. The questionnaires included the construct items adapted from previous studies and some questions on demographics. Each subject was assured of the confidentiality of his/her anonymous responses. The respondents were required to complete the questionnaire voluntarily. The data collected was coded and analyzed using the Statistical Package for Social Sciences (SPSS version 25) tool. Both descriptive and inferential analyses

were used as data analysis techniques. The regression analysis was guided by the following model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

Y = Financial performance

$\beta_0$  = constant term indication the level of performance in absence of any independent variables

Then:

$\beta_1$ ,  $\beta_2$ ,  $\beta_3$  and  $\beta_4$  are the coefficient function of the independent variables,

$X_1$  = National savings rate

$X_2$  = Inflation rate

$X_3$  = Exchange rate

$X_4$  = Interest rate

$\epsilon$  = Error term of the regression

## RESULTS AND DISCUSSIONS

### Descriptive Results

This study carried out the following descriptive statistics; mean, standard deviation of all the study variables.

#### National Savings Rate

The first objective of the study sought to investigate the effect of national savings rate on financial performance of DTMFIs. A likert-scale data was

collected rating the extent of agreement in a scale of 1 to 5 where 1 is the strongly disagree whereas 5 is the strongly agree indicator. The findings indicated that respondents agreed with the statement that national savings positively causes improvement in financial performance of MFIs as indicated by a mean of 4.34 and standard deviation of 0.642. The respondents further agreed to the statement that CBK policies enhance domestic savings as shown by a mean of 4.04 with a standard deviation of .581. Findings also showed that majority of respondents (mean = 4.15; std. dev. = .333) agreed to the statement that the population growth rate affects savings rate in MFIs. Finally respondents agreed to the statement that the Microfinance has no mechanism to control national savings rate as indicated by a mean of 4.39 and a standard deviation of .291. The findings agree with Waithama (2014) who analyzed the causal relationship between the rate of saving and economic growth for Kenya for the period 1960 – 2005 and found that an increase in national savings will cause an increase in investment and vice versa. The study results were shown in Table 1.

**Table 1: National Savings**

	Mean	Std. Deviation
National savings positively causes improvement in financial performance of MFIs	4.34	.642
The CBK policies enhance domestic savings	4.04	.581
The population growth rate affects savings rate in MFIs	4.15	.333
The Microfinance has no mechanism to control national savings rate	4.20	.435
<b>Average</b>	<b>4.18</b>	<b>.498</b>

#### Inflation Rate

The second objective of the study sought to establish the effect of inflation rate on financial performance of DTMFIs in Mombasa County. Data was collected through the Likert-scale measuring the level of agreement of the respondents with respect to the given aspects of inflation rate. From the findings,

respondents agreed to the statement that the microfinance resorts to credit rationing during inflation period as indicated by a mean of 4.13 and standard deviation of 0.844. The respondents agreed to the statement that capital formation has affected by inflation thus affecting intermediary activity as shown by a mean of 4.39 and a standard deviation of

0.275. Further, the respondents agreed to the statement that central bank monetary policies during inflation impacts microfinance institutions (mean=4.35). Finally the respondents agreed to the statement that deposit taking microfinance has no mechanism to control inflation rate as indicated by a mean of 4.04 with a standard deviation of 0.369. These results agree with Huybens and Smith (2015) who argued that inflation has negative effect

on the financial performance of microfinance institutions. According to the study on the impact of inflation on financial sector performance in eleven countries, Huybens and Smith (2015) argue that an increase in the rate of inflation could have at first negative consequences on financial sector performance through credit market frictions before affecting economic growth. The results were as presented in Table 2.

**Table 2: Inflation rate**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
The microfinance resorts to credit rationing during inflation period	51	4.13	.844
Capital formation has affected by inflation thus affecting intermediary activity	51	4.39	.275
Central bank monetary policies during inflation impacts microfinance institutions	51	4.35	.339
The microfinance has no mechanism to control inflation rate	51	4.04	.369
<b>Average</b>	<b>51</b>	<b>4.23</b>	<b>.457</b>

### Exchange Rate

The third objective of the study sought to determine the effect of exchange rate on financial performance of DTMFIs. The results showed that respondents agreed to the statement that deposit taking microfinance uses exchange rate as a conditioning variable for counter-inflationary policy as indicated by a mean of 4.12 with a standard deviation of 0.586. Further respondents agreed to the statement that exchange rate conveys information on the fundamentals in the economy and MFI adjusts accordingly as indicated by a mean of 4.35 with a standard deviation of 0.369. Respondents also agreed to the statement that deposit taking microfinance has

huge foreign exchange reserves as indicated by a mean of 4.21 and standard deviation of 0.473. Finally respondents agreed to the statement that the deposit taking microfinance has no mechanism to control exchange rate as indicated by a mean of 4.19 and standard deviation of 0.638. The findings resonates with Mongeri (2014) carried out a study on the impact of foreign exchange rates and foreign exchange reserves on the performance of NSE share index and concluded that there was a positive relationship between the exchange rates and stock exchange performance. The results are presented in Table 3.

**Table 3: Exchange rate**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Microfinance uses exchange rate as a conditioning variable for counter-inflationary policy	51	4.12	.586
Exchange rate conveys information on the fundamentals in the economy and MFI adjusts accordingly	51	4.35	.369
Microfinance has huge foreign exchange reserves	51	4.21	.473
The Microfinance has no mechanism to control exchange rate	51	4.19	.638
<b>Average</b>	<b>51</b>	<b>4.22</b>	<b>.517</b>

### Interest Rate

The section presents the study results on how interest rate on financial performance deposit taking microfinance institutions. The results are on means and standard deviation presenting the level of agreement of the respondents on the given aspects of interest rate. Findings showed that interest rate are competitive to attract customers as indicated by a mean of 4.35 and standard deviation of 0.369. Findings further show that interest rates set are dictated by central bank rate as indicated by a mean of 4.11 and standard deviation of 0.558. The findings

also show that interest rates are determined by the MFI internal policy (mean = 4.12; std. dev. = .386). Finally respondents agreed that the DTMFI has no mechanism to control interest rate (mean = 3.80; std. dev. = .648). The findings agree with Ibrahimov (2016) who did a study to establish the impacts of bank-specific and macroeconomic variables on the profitability of 41 banks over 2012–2015 and concluded that interest rate on loans had a positive influence on the return on assets of commercial banks. The results are as presented in Table 4.

**Table 4: Interest rate**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Interest rate are competitive to attract customers	51	4.35	.369
The interest rates set are dictated by central bank rate	51	4.11	.558
Interest rates are determined by the MFI internal policy	51	4.12	.386
The MFI has no mechanism to control interest rate	51	3.80	.648
<b>Average</b>	<b>51</b>	<b>4.10</b>	<b>.490</b>

### Financial Performance

According to the findings in Table 5, respondents agreed to the statement that the microfinance return on equity has increased in the last five years as indicated by a mean of 4.46 and standard deviation of 0.219. The respondents further agreed to the statement that the return on assets of the

microfinance has improved as indicated by a mean of 4.22. Finally, respondents agreed to the statement that the MFI profitability has increased over the last five years as indicated by a mean of 4.13 and standard deviation of 0.385. The study results are presented in Table 5.

**Table 5: Financial performance**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
The microfinance return on equity has increased in the last five years	51	4.46	.219
The return on assets of the microfinance has improved	51	4.22	.442
The MFI profitability has increased over the last five years	51	4.13	.385
<b>Average</b>	<b>51</b>	<b>4.27</b>	<b>.349</b>

### Correlation Analysis

Correlation test is very vital for any econometric analysis; if the explanatory variables are highly correlated then we expect multi-collinearity (Kothari, 2014). The study used Pearson correlation to identify the strength and direction of linear relationship

between the study variables. Correlation results showed that there was a moderate positive correlation between national savings and financial performance of deposit taking micro financial institutions ( $r=0.495$ ,  $P=0.000$ ). Further, correlation results showed that the correlation between inflation

rate and micro finance institutions' financial performance was significant and positive ( $r=0.401$ ,  $P=0.000$ ). The correlation results also showed that correlation between exchange rate and financial performance of DTMFIs was moderately positive and

significant as indicated by  $r=0.417$ ,  $P=0.000$ . Finally, there was a moderate significant relationship between interest rate and financial performance of DTMFIs ( $r=0.324$ ,  $P=0.018$ ). The results are shown in Table 6.

**Table 6: Correlation coefficient**

		National savings	Inflation rate	Exchange rate	Interest rate	Financial performance
National savings	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	51				
Inflation rate	Pearson Correlation	.679**	1			
	Sig. (2-tailed)	.000				
	N	51	51			
Exchange rate	Pearson Correlation	.605**	.716**	1		
	Sig. (2-tailed)	.000	.000			
	N	51	51	51		
Interest rate	Pearson Correlation	.609**	.499**	.518**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	51	51	51	51	
Financial performance	Pearson Correlation	.466**	.401**	.417**	.324	1
	Sig. (2-tailed)	.000	.000	.000	.018	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### Regression Analysis

Results in Table 7 indicated a correlation coefficient (R) as 0.744 which showed that the independent variables have a strong positive relationship with financial performance. The coefficient of determination (R-Square) showed that the explanatory variables used in the study could be relied on as it explained 55.4% of the variability in the

financial performance. Thus, based on the findings, it was clear that holding other factors constant, national savings, inflation rate, exchange rate and interest rate explained 55.4% variation in financial performance of deposit taking micro finance institutions. The remaining 44.6% of the changes in the Y was explained by other factors not in the model. The results were shown in Table 7.

**Table 7: Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.744 <sup>a</sup>	.554	.526	1.0629

a. Predictors: (Constant), National savings, Inflation rate, Exchange rate, Interest rate

### Analysis of Variance

Analysis of variance results in Table 8 indicated that the significance value in testing the reliability of the model for the relationship between the study variables was obtained as 0.00 which is less than 0.05, the critical value at 95% significance level. Therefore

the model is statistically significant in predicting the relationship between macro-economic factors and financial performance of deposit taking MFIs in Mombasa County. The results are presented in Table 8.

**Table 8: Analysis of Variance**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	297.271	4	74.317	14.275	.000 <sup>b</sup>
	Residual	239.502	46	5.206		
	Total	536.773	50			

a. Dependent Variable: Financial performance

b. Predictors: (Constant), National savings, Inflation rate, Exchange rate, Interest rate

**Table 9: Regression coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.181	1.206		2.638	.000
National savings	.239	.113	.477	2.115	.001
Inflation rate	-.310	.137	-.050	-2.263	.022
Exchange rate	.381	.120	.408	3.159	.000
Interest rate	.398	.168	.445	2.369	.000

a. Dependent Variable: Financial performance

$$Y = 3.181 + 0.239X_1 - 0.310X_2 + 0.381X_3 + 0.398X_4$$

From the regression results, predictor variables indicated a positive coefficient indicating a positive effect on financial performance. The regression coefficients showed a significant relationship as indicated by the p-values where all the significant values were less than 0.05 indicating a significant relationship between the dependent and independent variables. From the regression results, taking all factors constant at zero, the variation in financial performance would be 3.181.

### Hypotheses Testing

Given the P values as shown in above, hypotheses testing can be concluded as below.

**H<sub>01</sub>:** National savings has no significant effect on financial performance of deposit taking MFIs in Mombasa County.

In relation to the variable national savings, the results showed that it had positive and significant effect on

financial performance. This is supported by regression analysis t-value of 2.115 which is greater than the critical value 2.0 and a p-value of 0.001 at 95% level of significance which is less than 0.05. After testing the hypothesis by comparing the scores of calculated t-value and critical t calculated t-values as 2.115 for national savings, which is greater than the critical  $t_{51-1} (0.05) = 2.0$ , the study rejected the null hypothesis that there is no significant effect of national savings on financial performance of deposit taking MFIs in Mombasa County.

**H<sub>02</sub>:** Inflation rate has no significant effect on financial performance of deposit taking MFIs in Mombasa County.

In relation to the variable inflation rate, the results indicated that inflation rate has a positive and significant effect on financial performance of deposit taking MFIs. This is supported by regression analysis

t-value of -2.263 which is less than the critical value 2.0 and a p-value of 0.022 at 95% level of significance which is less than 0.05. After testing the hypothesis by comparing the scores of calculated t-value and critical t; Calculated t-values was, -2.263, which is greater than the critical  $t_{51-1} (0.05) = 2.0$ . The study rejected the null hypothesis that there is no significant of inflation rate on financial performance of deposit taking MFIs in Mombasa County.

**H<sub>03</sub>:** Exchange rate has no significant effect on financial performance of deposit taking MFIs in Mombasa County.

In relation to the variable exchange rate, the regression results established that exchange rate has a positive and significant effect on financial performance of deposit taking MFIs in Mombasa County. It was supported by regression t-value of 3.159 which is greater than the critical value 2.0 and a P-value of 0.000 at 95% level of significance which is less than 0.05. After testing the hypothesis by comparing the scores of calculated t-value and critical t; Calculated t-values was, 3.159 for exchange rate,

which is greater than the critical  $t_{51-1} (0.05) = 2.0$ . The study rejected the null hypothesis that there is no significant effect of exchange rate financial performance of deposit taking MFIs in Mombasa County.

**H<sub>04</sub>:** Interest rate has no significant effect on financial performance of deposit taking MFIs in Mombasa County.

In relation to the variable interest rate, the regression results showed that interest rate has a significant effect on financial performance of deposit taking MFIs in Mombasa County. It was supported by regression t-value of 2.369 which is greater than the critical value 2.0 and a P-value of 0.000 at 95% level of significance which is less than 0.05. After testing the hypothesis by comparing the scores of calculated t-value and critical t; Calculated t-values was, 2.369 for interest rate, which is greater than the critical  $t_{51-1} (0.05) = 2.0$ . The study rejected the null hypothesis that there is no significant effect of interest rate on financial performance of deposit taking MFIs in Mombasa County.

**Table 10: Hypotheses Testing**

Hypotheses	Standardized beta	t-test	P-value	Decision
National savings has no significant effect on financial performance in DTMFIs	0.239	2.115	0.001	Reject H <sub>01</sub>
Inflation rate has no significant effect on financial performance in DTMFIs	-0.310	2.263	0.022	Reject H <sub>02</sub>
Exchange rate has no significant effect on financial performance in DTMFIs	0.381	3.159	0.000	Reject H <sub>03</sub>
Interest rate has no significant effect on financial performance in DTMFIs	0.398	2.369	0.000	Reject H <sub>04</sub>

### Discussion

The study established that there was a significant relationship between national savings rate and financial performance of deposit-taking micro finance institutions.

This means a unit increase in national savings rate would cause an increase in financial performance of deposit-taking micro finance institutions by a factor of 0.239 and a unit decrease in national savings rate

would cause a decrease in financial performance of deposit-taking micro finance institutions by a factor of 0.239. These results agrees with Waithama (2014) who analyzed the causal relationship between the rate of saving and economic growth for Kenya for the period 1960–2005 and established that there was a double causality between GDP and investment which means that an increase in savings would cause an increase in investment and vice versa.

From the findings of the study it was found that there was a negative contribution of inflation to the regression model with a factor of -0.310. This implied that a unit increase in inflation would cause a decrease in financial performance of deposit taking micro finance institutions by a factor of -0.310 while a decrease in inflation by one unit would cause an increase in financial performance of deposit-taking micro finance institutions by a factor of 0.310. These results agree with Huybens and Smith (2015) who argued that inflation has negative effect on the financial performance of microfinance institutions. An increase in the rate of inflation could have at first negative consequences on financial sector performance through credit market frictions before affecting economic growth.

Regression results further indicated that there was a significant relationship between interest rate and financial performance of deposit-taking micro finance institutions. The study established that a unit increase in interest rate would cause an increase in financial performance of deposit-taking micro finance institutions by a factor of 0.398 while a unit decrease in interest rate would cause a decrease in financial performance of deposit-taking micro finance institutions by a factor of 0.398.

The regression results also established that there was a significant relationship between exchange rate and financial performance of deposit-taking micro finance institutions and that a unit increase in exchange rates would cause an increase in financial performance of deposit-taking micro finance institutions by a factor of 0.381 while a decrease in exchange rates would cause a decrease in financial performance of deposit-taking micro finance institutions by a factor of 0.381. Results agreed with a study by Mongeri, (2014) who did a study on the impact of foreign exchange rates and foreign exchange reserves on the performance of NSE share index whose objective was to determine the impact of foreign exchange rates and foreign

exchange reserves on the performance of NSE index and found out that foreign exchange rates positively influenced the performance of NSE index.

## **CONCLUSIONS AND RECOMMENDATIONS**

From the study findings, the study concluded that the financial performance of deposit taking MFIs were positively affected by national savings. This implied that the more the public save, the high the performance of DTMFIs improves and vice versa. The public savings are influenced by the efforts of the central bank to invoke saving friendly policies with a view to enhance domestic savings. The study concludes that when the population grows, this creates a positive potential for the improvement of the deposit taking MFIs to grow their customer base and it was concluded that deposit taking MFIs have no mechanism to control national savings rate.

The study concluded that microfinance resorts to credit rationing during inflation period and capital formation has affected by inflation thus affecting intermediary activity. It was concluded that central bank monetary policies during inflation impacts microfinance institutions and deposit taking microfinance has no mechanism to control inflation rate.

The study concluded that deposit taking microfinance uses exchange rate as a conditioning variable for counter-inflationary policy and that exchange rate conveys information on the fundamentals in the economy and MFI adjusts accordingly. The study concludes that deposit taking microfinance has huge foreign exchange reserves and the deposit taking microfinance has no mechanism to control exchange rate.

The study concluded that interest rate are competitive to attract customers and that interest rates set are dictated by central bank rate. The study concludes that interest rates are determined by the MFI internal policy and the deposit taking



microfinance institutions lacks mechanism to control interest rate effect on its performance.

The study recommended that deposit taking MFIs management should lobby the CBK to enact policies which will end up stimulating public to save as this was found to positively affect financial performance of deposit taking MFIs. The more the public save the higher the probability of improved financial performance and vice versa. The deposit taking MFIs management should ensure their presence in highly populated areas so as to tap on the huge population hence improve performance.

The study recommended that deposit taking microfinance institutions' management should cushion the negative impacts of inflation on the return on assets of the deposit taking MFIs by rationing the credit to customers during inflation and increasing credit to the customers during deflation state. The study recommends that the management of deposit taking MFIs should diversify its activities so as to shield themselves from the drawbacks of inflation. The management can lobby CBK to invoke monetary policies to control inflation rate in the economy.

The study recommended that the management of deposit taking microfinance institutions should adopt rates of exchange as a conditioning variable for counter-inflationary policy. The management should

use the exchange rate information positively as it was found to convey information on the fundamentals in the economy. The deposit taking MFIs should store huge foreign exchange reserves to enhance its performance.

The study recommended that the management of deposit taking MFIs should set interest rate level for both lending and deposits which is competitive so as to attract more customers and lead to improved performance. The deposit taking MFIs should design dynamic interest rate policies which would lead to growth by raking as many customers as possible rather than making profits in the short-run.

#### **Areas of Further Research**

This study was limited to investigating macro-economic factors and how they affect financial performance of deposit taking microfinance institutions in Mombasa County. The regression results showed that 55.4% of the results were explained by the inflation rate, exchange rate, interest rate and national savings which formed the study explanatory variables. This showed that the study did not factor other macro-economic factors which have an effect on DTMFIs hence need to study those factors not incorporated in the current study to find out how they would affect financial performance of not only DTMFIs but also other financial institutions in Kenya.

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